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Application Number	10/655,988
Filing Date	September 5, 2003
First Named Inventor	Dale L. Handlin, Jr.
Art Unit	N/A; Confirmation No.: 4200
Examiner Name	N/A
Total Number of Pages in This Submission: 10	Attorney Docket Number: KPR-T3229ARE

ENCLOSURES *(Check all that apply)*

- ☐ Fee Transmittal Form
- ☐ Fee Attached
- ☑ Amendment/Reply
- ☐ After Final
- ☐ Affidavits/declaration(s)
- ☐ Extension of Time Request
- ☐ Express Abandonment Request
- ☐ Information Disclosure Statement
- ☐ Certified Copy of Priority Document(s)
- ☐ Response to Missing Parts/ Incomplete Application
- ☐ Response to Missing Parts under 37 CFR 1.52 or 1.53
- ☐ Drawing(s)
- ☐ Licensing-related Papers
- ☐ Petition
- ☐ Petition to Convert to a Provisional Application
- ☐ Power of Attorney, Revocation Change of Correspondence Address
- ☐ Terminal Disclaimer
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- ☐ After Allowance communication to Group
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Remarks

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Gene L. Tyler, Reg. No. 35,396
Signature	
Date	April 30, 2004

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Beth Pearson-Naul

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Serial Application No.:10/655,988	§	Examiner: NA
Inventor: Dale L. Handlin	§	Art Unit: NA
Filing Date: September 5, 2003	§	Attorney Docket # KPR-T3229-RE
Title: Butadiene Polymers Having Terminal Functional Groups	§	

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RESPONSE TO THE PROTEST UNDER 37 C.F.R. §1.291

The Patentee's received from Protestor a copy of a protest under 37 C.F.R. §1.291allegedly filed with the Patent and Trademark Office on February 23, 2004. In response to same, the Patentee files these comments and arguments.

COMMENTS AND ARGUMENTS

In the protest filed, by SARTOMER (hereinafter Protestor), it is alleged that the proposed amendments being requested by Patentees do not serve to distinguish the present invention from the prior art. The Protestor cites a declaration by Dr. Taejun Yoo as proof that the prior art reads upon the proposed claims. Additionally, the Protestor states that those claims not anticipated by the prior art are obvious. Other arguments put forth by the Protestor include: Claims 22, 27, and 28 are dependent claims broader than the claims from which they depend; and that U.S. Patent No. 3,629,172 anticipates or renders obvious Claims 1-2, 4-12, and 14-23.

It should be noted that the protest for this case is substantially similar to that filed for the parent to this case, 10/657,064. At the time of this response, the Patentee has not been informed as to the identity of the Examiner or Examiners that will be assigned to these cases. As there is a possibility that these cases may be assigned to two examiners, the arguments made in the response filed in the parent case will be reproduced substantially identically here. In addition, the Patentee will make arguments regarding the patentability of the claims of the present invention as they relate to the polymers of the present case that are prepared using the functionalized polybutadienes of the parent case. The Patentees apologize for any inconvenience that may result from the Examiner being required to review identical arguments should both the parent and continuation cases be assigned to the same Examiner.

It is the Patentees' position that the proposed amendments clearly place the claims outside of the prior art. It is also the Patentees' position that Dr. Taejun Yoo's declaration (hereinafter Declaration) has several flaws rendering it undependable. Arguments for both of these points follow.

The first defect in the Declaration is that it does not provide a sufficient basis to determine what polymer is being used and tested by Dr. Yoo. In paragraph 7 of the Declaration, Dr. Yoo cites the 1989 Bouchal reference (Reference AM) in the reissue application. Dr. Yoo lists the properties of a polymer disclosed therein: M_n=5100; f_0=1 mol-%, F_1=9 mol-% and f_2=90 mol-%, and 1,2-additon of 59.1 percent. His next statement is "I obtained such polymer."

The properties he listed are precisely the properties in the article at page 167. What Dr. Yoo does not state is whether he obtained a sample of the original polymer made at the time of the paper, that is prior to 1989, or did he acquire a sample of polymer made more recently. It is highly unlikely that he was able to obtain the exact matching material. If newly made, then it would be expected that there would be some variation in the properties. If the polymer is the same one described in the AM reference, then it would very likely be degraded by now.

Even assuming that the polymer obtained by Dr. Yoo is the same or substantially the same as that of the AM reference, he gives no details regarding how he hydrogenated it. If he hydrogenated according to the reference, he would not have gotten the results that he reports. An object of the present invention is the preparation of hydrogenated polymers that have not lost any significant portion of their functionality. As expressly stated in the AM reference at page 178:

> From these parameters we have found that during the hydrogenation under the conditions specified above one part of the reactive end group is eliminated, because the concentration of HO-groups in the starting polybutadiene was 0.42 mmol·g^{-1} (and the concentration resulting from the hydrogenation is 0.29 (mmol·g^{-1})).

So if Dr. Yoo hydrogenated the polybutadiene according the AM reference, the polymer would have a functionality of about 1 or less and be outside of the scope of the claims as amended. If Dr. Yoo hydrogenated the polymer using more modern techniques, then he has

simply recreated the present invention using hind-sight reconstruction. In either case, the claims of the present reissue application are clearly patentable over the AM reference.

It is the Patentees' position that the polymer represented in the Declaration is either not representative of the polymer of the AM reference and/or is made using the teaching of the presently considered invention and is therefore hind-sight reconstruction. Nonetheless, Patentees' wish to take the liberty of making further observations on the Declaration with regard to the attested viscosity measurements. The Declaration states that the viscosity of the hydrogenated polymer measured at room temperature was 114,000 centipoises. The calculated ratio of this viscosity to the peak molecular weight raised to the 3.4 power is 0.3 times 10^{-9}. However, it is well known that all viscosities are not the same. They depend upon test geometry and shear rate to state just two factors. No description of the methodology is given in the Declaration and so it is impossible to judge if the viscosities reported there correspond to those disclosed and relied upon by the Patentees. Therefore, the Declaration does not present a reliable viscosity measurement.

Even if the methodology of the viscosity measurements of the Declaration corresponded to that of the Patentees' disclosed and relied upon method, there are further questions left unanswered relating to the material upon which the measurements were performed. In the AM reference the polymers are hydrogenated in toluene solvent and then precipitated in excess alcohol. It is well known that small amounts of solvent can drastically reduce the viscosity of a polymer. This is particularly true when the solvent is polar, like alcohol, and the polymer has hydrogen-bonding functional groups, like hydroxyl groups. It was a particular concern of the Patentees' to remove all solvent from the polymer before any viscosity measurements were performed. From the lack of detail presented in the Declaration it is simply not known what if any precautions were taken to ensure that solvating effects were not present during the viscosity measurements. For this reason also Patentees' deem the viscosity measurement of the Declaration as unreliable.

The Protestor alleges that claims 22, 27, and 28 are not allowable under 35 USC §112 because they depend from claims having a limitation of about 2 or more functional groups and these claims are limited to 1.5 or 1.7 functional groups. It is the Patentee's position that they are entitled to the range of coverage within the claims. The Independent Claims recite about two or more functional groups. It is a standard practice to round up to an even number where 1.4 is rounded down to 1 and 1.5 is rounded up to 2. Since the limitation in the independent claims is "about two" and not 2.0, then any number that could be rounded up to two should be included within the scope of the claims of this reissue application. Specifically both 1.5 and 1.7 values would be rounded up to about two and are appropriate limitations in such a dependent claim.

The Protestor also alleges that the claims, even in view of the proposed amendments, are anticipated by U.S. Patent No. 3,629,172 to Jones. The Protestor has acknowledged that the claims as amended are narrower than those already allowed in view of Jones, so the Protestor is basically asserting that the Examiner made an error in allowing the claims in the original application.

It is the Patentees' position that the original claims were properly allowed in view of Jones. This reference was overcome in view of a showing of a material reduction in chain length by chain length (scission) during hydrogenation by means of a declaration by Dale Handlin submitted on June 9, 1994. The work documented by the Handlin declaration clearly shows that the polymer reported in Jones is materially different from those claimed in the present reissue application. Of particular significance is the fact that Jones' degraded polymer would be composed of lower molecular weight fractions having an average of less than one terminal functional group per molecule. This fuctionalization level is outside the scope of the Patentees' originally granted claims and the presently amended claims.

It should be noted that the Protestor has alleged that some of the proposed claims of this reissue application are obvious rather than anticipated by the prior art references. That is all

that the Protestor does. If an Examiner were to make such a rejection, the Patentees would properly ask for a citation of a reference, or if the basis of the rejection is the Examiner's own knowledge, a documentation of same. In this instance, the Patentee cannot further respond to these allegations except to say that the Protestor has not provided any evidence of prima facie obviousness of any of the claims other than the mere assertion of same. Further, it is the Patentees' position that the entire body of relevant art is now being considered.

While the Patentee's believe that the arguments already presented are dispositive and that the amended claims should be allowed, the Protestor's comments notwithstanding, the Patentees also wish to present the following arguments relating to polymer prepared using the functionalized polybutadiene. It should be noted that the Protestor has made no arguments regarding the polymers prepared using the functionalized polybutadiene.

This case was allowed after an amendment clarifying that the polymers are prepared by means of a reaction with the functional groups of the functionalized polybudiene and not through reaction with the polymer backbone. As was stated in by the Examiner in his reasons for allowance:

> Although the prior art, as exemplified by U.S. Patent 3,629,172 to Jones, teach the functionalized diene polymers of which applicants' claimed base polymers are an example, the combination of 1,2-addition, and hydrogenation, along with the low molecular weight of the polymers renders them different than those taught in the prior art which, when they do contain this combination of 1,2-addition and hydrogenation are high molecular weight polymers. The functionalized base polymers used for the reacted products of applicants' claims are, therefore, both novel and unobvious over the closest prior art. The reaction taking place is one where the terminal functional group reacts with at least one other compound to form a functionalized or block polymer as seen in applicants' disclosure. Reaction through the terminal group as stipulated by the claims does not change the backbone of the base polymer and the functional group becomes a linking group. This is why the claimed reactions contain the novelty of the base polymer which remains intact after the reaction takes place. The claims are, therefore, both novel and unobvious over the closest prior art.

It is clear that the first examination was not faulty and is in fact a well-considered examination.

Since the Protestor made no arguments that the polymers prepared with the functionalized polybutadiene are obvious, this at least implies their obviousness "goes without saying" which is an interesting interpretation of patent law. But these products are not obvious and are patentable. And this conclusion is based upon not just the examination of the present patent and its parent, but of many other and later patents to specific polymer products. For example:

US 5,925,724 EP 0 833 854 B1	Use of Polydiene Diols in Thermoplastic Polyurethanes
US 6,043,316 U S 5,962,077 US 5,916,941 US 5,750,627 MX 201,827 EP 0 861 292 B1	Crosslinkable Compositions Containing Hydroxyl Terminated Diene Polymers, Amino Resins, and Reinforcing Agents, and a Process for Preparing Them
US 6,111,049	Polyurethanes having improved Moisture Resistance
US 5,710,192	Polydiene Diols in Resilient Polyurethane Foams
US 5,864,001 MX 203329 EP 0 932 634 B1	Polyurethanes Made with Polydiene Diols, Diisocyanates and Dimer Diol Chain Extender
US 5,973,016	Polyurethane Foams of Polydiene Diols and Oil

US 5,922,781 EP 0 983 309 B1	Weatherable Resilient Polyurethane Foams
US 6,060,560 US 6,388,010 ZA 98/04304	Novel Polyurethane Compositions Made from Hydroxy-terminated Polydiene Diols
US 6,323,299	A Method for Producing Mixed Polyol Thermoplastic Polyurethane Compositions
EP 1 137 688 B1	Process for Preparing Thermoplastic Polyurethane Elastomers
EP 1 012 199 B1 US 6,077,925	Polyurethane Structural Adhesives Prepared from Inter Alia a Polydiene Diol
EP 0 950 083 US 5,929,167 MX 205 824	Adhesive Comprising TPU Derived from Aromatic Diisocyanate, Chain Extender, and a Mixture of Hydrogenated Polydiene Diol and Mono-ol

All of these patents reference a functionalized polybutadiene substantially similar to that used to prepare the polymers that are the subject of the present claims.

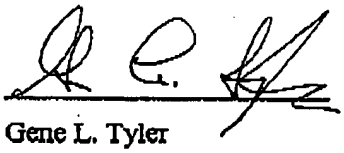
While these patents are to improvements upon the polymer that are the subject of the claims of the present reissue application, it cannot be denied that these polymers prepared from the functionalized polybutadienes illustrate that the product polymers of the functionalized polybutadiene have utility and properties that would not have been anticipated in view of any of the art cited by the Protestor.

Summary:

The Protestor makes much of the fact that the Patentees have proposed to amend their claims in view of the references that the Protestor has provided. It should be noted that the references provided are old and somewhat obscure. It is often difficult to deal with older references because the times and technology have moved on and it is sometimes difficult to ascertain what was actually done in view of the present day understanding of the relevant chemistry. It is often easier to amend claims so that they avoid an apparent conflict with the prior art than to, for example, do lab work to further prove that the references are not material to the invention.

Since the Protestor takes the liberty of speculating on the reasons for the Patentees filing a reissue application, perhaps the Protestor will not mind if the Patentees speculate as to the Protestor's reasons for filing a protest. The Protestor has a product line (http://www.sartomer.com/prodline.asp?plid=8) that may be within the scope of the claims of the patent(s). It may be that this protest merely represents a self-serving effort to protect a product line from the Patentees' rights rather than a sincere effort to invalidate a patent having claims with too broad scope. In any event, these issues are moot since the claims of the present reissue application are clearly allowable in view of the prior art.

Respectfully submitted,



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